

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

- 1 1. (Previously presented) A method for selectively auditing accesses to a
- 2 relational database, comprising:
 - 3 receiving a query for the relational database;
 - 4 selectively auditing an access to the relational database,
 - 5 wherein selectively auditing the access involves
 - 6 automatically modifying the query prior to processing the query, so
 - 7 that processing the query causes an audit record to be created and
 - 8 recorded only for rows in relational tables that are accessed by the
 - 9 query and that satisfy an auditing condition,
 - 10 wherein satisfying the auditing condition allows selective
 - 11 auditing of the query and not for other rows,
 - 12 wherein the auditing condition specifies a condition based on
 - 13 a value of a field in a row in the relational database, and
 - 14 wherein satisfying the auditing condition allows selective
 - 15 auditing of the query,
 - 16 wherein if the query includes a select statement, inserting a
 - 17 case statement into the select statement that calls a function that
 - 18 causes the audit record to be created and recorded if the auditing
 - 19 condition is satisfied,
 - 20 wherein inserting the case statement into the query further
 - 21 comprises:

1 3. (Previously presented) The method of claim 1, further comprising
2 ensuring that the case statement is evaluated near the end of the query processing so
3 that the case statement is evaluated only after other conditions of the query are
4 satisfied.

1 4 (Canceled).

5. (Original) The method of claim 1, wherein if the query modifies at least one entry in the relational database, using a relational database system trigger to create and record the audit record for the modification to the relational database.

1 6 (Canceled).

1 7. (Original) The method of claim 1, wherein the audit record includes:
2 a user name for a user making the query;
3 a time stamp specifying a time of the query; and
4 a text of the query.

1 8. (Original) The method of claim 1, wherein the auditing condition
2 includes a condition for a field within the relational database.

1 9. (Previously presented) A computer-readable storage medium storing
2 instructions that when executed by a computer cause the computer to perform a
3 method for selectively auditing accesses to a relational database, the method
4 comprising:
5 receiving a query for the relational database;
6 selectively auditing an access to the relational database,
7 wherein selectively auditing the access involves
8 automatically modifying the query prior to processing the query, so
9 that processing the query causes an audit record to be created and
10 recorded only for rows in relational tables that are accessed by the
11 query and that satisfy an auditing condition,
12 wherein satisfying the auditing condition allows selective
13 auditing of the query and not for other rows,
14 wherein the auditing condition specifies a condition based on
15 a value of a field in a row in the relational database, and
16 wherein satisfying the auditing condition allows selective
17 auditing of the query,
18 wherein if the query includes a select statement, inserting a
19 case statement into the select statement that calls a function that
20 causes the audit record to be created and recorded if the auditing

21 condition is satisfied,
22 wherein inserting the case statement into the query further
23 comprises:
24 inserting the case statement into the query,
25 allowing a query processor to allocate buffer
26 for the query,
27 removing the case statement from the query,
28 allowing the query processor to generate a
29 query plan for the query, and
30 scheduling the case statement near the end of
31 the query plan to ensure that the case statement is
32 evaluated only after other conditions of the query are
33 satisfied, so that the auditing record is created only
34 for rows that are actually accessed by the query;
35 processing the modified query to produce a query result, wherein processing
36 the modified query includes:
37 creating the auditing records for rows in relational tables that
38 are accessed by the query and that satisfy the auditing condition, and
39 recording the audit record in an audit record store; and
40 returning the query result.

1 10 (Canceled).

1 11. (Previously presented) The computer-readable storage medium of claim
2 9, wherein the method further comprises ensuring that the case statement is
3 evaluated near the end of the query processing to that the case statement is
4 evaluated only after other conditions of the query are satisfied.

1 12. (Original) The computer-readable storage medium of claim 9, wherein
2 the method further comprises retrieving the auditing condition for a given table
3 from a data structure associated with the given table.

1 13. (Original) The computer-readable storage medium of claim 9, wherein if
2 the query modifies at least one entry in the relational database, the method further
3 comprises using a relational database system trigger to create and record the audit
4 record for the modification to the relational database.

1 14 (Canceled).

1 15. (Original) The computer-readable storage medium of claim 9, wherein
2 the audit record includes:
3 a user name for a user making the query;
4 a time stamp specifying a time of the query; and
5 a text of the query.

1 16. (Original) The computer-readable storage medium of claim 9, wherein
2 the auditing condition includes a condition for a field within the relational database.

1 17. (Previously presented) An apparatus that selectively audits accesses to a
2 relational database, comprising:
3 a receiving mechanism configured to receive a query for the relational
4 database;
5 a selective auditing mechanism configured to selectively audit an access to
6 the relational database,
7 wherein selectively auditing the access involves
8 automatically modifying the query prior to processing the query, so
9 that processing the query causes an audit record to be created and
10 recorded only for rows in relational tables that are accessed by the

query and that satisfy an auditing condition,
wherein satisfying the auditing condition allows selective auditing of the query and not for other rows,
wherein the auditing condition specifies a condition based on a value of a field in a row in the relational database, and
wherein satisfying the auditing condition allows selective auditing of the query,
wherein if the query includes a select statement, inserting a case statement into the select statement that calls a function that causes the audit record to be created and recorded if the auditing condition is satisfied,
wherein inserting the case statement into the query further comprises:
inserting the case statement into the query,
allowing a query processor to allocate buffer for the query,
removing the case statement from the query,
allowing the query processor to generate a query plan for the query,
and scheduling the case statement near the end of the query plan to ensure that the case statement is evaluated only after other conditions of the query are satisfied, so that the auditing record is created only for rows that are actually accessed by the query;
a query processor that is configured to process the modified query to produce a query result, wherein processing the modified query includes:
creating the auditing records for rows in relational tables that are accessed by the query and that satisfy the auditing condition, and
recording the audit record in an audit record store; and
a returning mechanism that is configured to return the query result.

1 18 (Canceled).

1 19. (Previously presented) The apparatus of claim 17, wherein the query
2 modification mechanism is configured to ensure that the case statement is evaluated
3 near the end of the query processing so that the case statement is evaluated only
4 after other conditions of the query are satisfied.

1 20. (Original) The apparatus of claim 17, wherein the query modification
2 mechanism is configured to retrieve the auditing condition for a given table from a
3 data structure associated with the given table.

1 21. (Original) The apparatus of claim 17, wherein if the query modifies at
2 least one entry in the relational database, the apparatus uses a relational database
3 system trigger to create and record the audit record for the modification to the
4 relational database.

1 22 (Canceled).

1 23. (Original) The apparatus of claim 17, wherein the audit record includes:
2 a user name for a user making the query;
3 a time stamp specifying a time of the query; and
4 a text of the query.

1 24. (Original) The apparatus of claim 17, wherein the auditing condition
2 includes a condition for a field within the relational database.

1 25. (Previously presented) The method of claim 1, further comprising
2 retrieving the auditing condition for a given table from a data structure associated
3 with the given table.

1 26. (Currently amended) A method for selectively auditing accesses to a
2 relational database, comprising:
3 receiving a database operation for the relational database;
4 selectively auditing an access to the relational database based on an
5 auditing condition, wherein the auditing condition specifies a condition based on a
6 value of a field in a row in the ~~relation~~relational database;
7 processing the database operation to produce a database operation result,
8 wherein processing the database operation includes:
9 creating the auditing records for selected rows in the
10 relational ~~tables~~database that are accessed by the database
11 operation, ~~and that~~wherein the selected rows satisfy the auditing
12 condition, and
13 recording the audit record in an audit record store; and
14 returning the database operation result.

1 27. (Previously presented) The method of claim 26,
2 wherein selectively auditing the access involves automatically modifying
3 the database operation prior to processing the database operation;
4 wherein processing the database operation causes an audit record to be
5 created and recorded only for rows in relational tables that are accessed by the
6 database operation and that satisfy an auditing condition;
7 wherein satisfying the auditing condition allows selective auditing of the
8 database operation and not for other rows;
9 wherein satisfying the auditing condition allows selective auditing of the
10 database operation;
11 wherein if the database operation includes a select statement, inserting a
12 case statement into the select statement that calls a function that causes the audit
13 record to be created and recorded if the auditing condition is satisfied; and

14 wherein if inserting the case statement into the database operation further
15 comprises inserting the case statement into the database operation:
16 allowing a database operation processor to allocate buffer
17 for the database operation,
18 removing the case statement from the database operation,
19 allowing the database operation processor to generate a
20 database operation plan for the database operation, and
21 scheduling the case statement near the end of the database
22 operation plan to ensure that the case statement is evaluated only
23 after other conditions of the database operation are satisfied, so that
24 the auditing record is created only for rows that are actually
25 accessed by the database operation.

1 28. (Previously presented) The method of claim 27, wherein the auditing
2 condition includes a condition for at least two fields within the relational database.

1 29. (Currently amended) A computer-readable storage medium storing
2 instructions that when executed by a computer cause the computer to perform a
3 method for selectively auditing accesses to a relational database, the method
4 comprising:
5 receiving a database operation for the relational database;
6 selectively auditing an access to the relational database based on an
7 auditing condition, wherein the auditing condition specifies a condition based on a
8 value of a field in a row in the relation-relational database;
9 processing the database operation to produce a database operation result,
10 wherein processing the database operation includes:
11 creating the auditing records for selected rows in the
12 relational tables-database that are accessed by the database

13 operation, ~~and that~~wherein the selected rows satisfy the auditing
14 condition, and
15 recording the audit record in an audit record store; and
16 returning the database operation result.

1 30. (Previously presented) The computer-readable storage medium of
2 claim 29,
3 wherein selectively auditing the access involves automatically modifying
4 the database operation prior to processing the database operation;
5 wherein processing the database operation causes an audit record to be
6 created and recorded only for rows in relational tables that are accessed by the
7 database operation and that satisfy an auditing condition;
8 wherein satisfying the auditing condition allows selective auditing of the
9 database operation and not for other rows;
10 wherein satisfying the auditing condition allows selective auditing of the
11 database operation;
12 wherein if the database operation includes a select statement, inserting a
13 case statement into the select statement that calls a function that causes the audit
14 record to be created and recorded if the auditing condition is satisfied; and
15 wherein if inserting the case statement into the database operation further
16 comprises inserting the case statement into the database operation:
17 allowing a database operation processor to allocate buffer
18 for the database operation,
19 removing the case statement from the database operation,
20 allowing the database operation processor to generate a
21 database operation plan for the database operation, and
22 scheduling the case statement near the end of the database
23 operation plan to ensure that the case statement is evaluated only

24 after other conditions of the database operation are satisfied, so that
25 the auditing record is created only for rows that are actually
26 accessed by the database operation.

1 31. (Previously presented) The computer-readable storage medium of
2 claim 30, wherein the auditing condition includes a condition for at least two
3 fields within the relational database.

1 32. (Currently amended) An apparatus for selectively auditing accesses to
2 a relational database, comprising:

3 a receiving mechanism configured to receive a database operation for the
4 relational database;

5 a selective auditing mechanism configured to selectively audit an access to
6 the relational database based on an auditing condition, wherein the auditing
7 condition specifies a condition based on a value of a field in a row in the relation
8 relational database;

9 a processing mechanism configured to process the database operation to
10 produce a database operation result;

11 a creating mechanism configured to create the auditing records for

12 | selected rows in the relational tables database that are accessed by the database
13 | operation, and ~~that~~wherein the selected rows satisfy the auditing condition, and

14 a recording mechanism configured to record the audit record in an audit
15 record store; and

16 a returning mechanism configured to return the database operation result.

1 33. (Previously presented) The apparatus of claim 32,
2 wherein selectively auditing the access involves automatically modifying
3 the database operation prior to processing the database operation;

4 wherein processing the database operation causes an audit record to be
5 created and recorded only for rows in relational tables that are accessed by the
6 database operation and that satisfy an auditing condition;

7 wherein satisfying the auditing condition allows selective auditing of the
8 database operation and not for other rows;

9 wherein satisfying the auditing condition allows selective auditing of the
10 database operation;

11 wherein if the database operation includes a select statement, inserting a
12 case statement into the select statement that calls a function that causes the audit
13 record to be created and recorded if the auditing condition is satisfied; and

14 wherein if inserting the case statement into the database operation further
15 comprises inserting the case statement into the database operation:

16 allowing a database operation processor to allocate buffer
17 for the database operation,

18 removing the case statement from the database operation,

19 allowing the database operation processor to generate a
20 database operation plan for the database operation, and

21 scheduling the case statement near the end of the database
22 operation plan to ensure that the case statement is evaluated only
23 after other conditions of the database operation are satisfied, so that
24 the auditing record is created only for rows that are actually
25 accessed by the database operation.

1 34. (Previously presented) The apparatus of claim 33, wherein the auditing
2 condition includes a condition for at least two fields within the relational database.